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PATENT

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Date: 4/24/06

Casey L. Martin
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re patent application of:

Appellant(s): Jayme Edwards

Serial No: 09/904,929

Filing Date: July 13, 2001

Examiner: Hieu C. Le

Art Unit: 2142

Title: INTERNET OBJECT BASED INTERFACE FOR INDUSTRIAL
CONTROLLER

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellant's representative submits this brief in connection with an appeal of the above-identified patent application. A credit card payment form is filed concurrently herewith. If any additional fees are due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063 [ALBRP392US].

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I. Real Party in Interest (37 C.F.R. §41.37(c)(1)(i))

The real party in interest in the present appeal is Rockwell Automation Technologies, Inc., the assignee of the present application.

II. Related Appeals and Interferences (37 C.F.R. §41.37(c)(1)(ii))

Appellants, appellants' legal representative, and/or the assignee of the present application are not aware of any appeals or interferences which will directly affect, or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. Status of Claims (37 C.F.R. §41.37(c)(1)(iii))

Claims 1-9, 11-15, 21-29 and 31-35 are pending in the application. The rejection of claims 1-9, 11-15, 21-29 and 31-35 is being appealed.

IV. Status of Amendments (37 C.F.R. §41.37(c)(1)(iv))

Claim amendments had been made and entered after the Final Office Action.

V. Summary of Claimed Subject Matter (37 C.F.R. §41.37(c)(1)(v))**A. Independent Claim 1**

Independent claim 1 and its corresponding dependent claims relate to an industrial control system interface. A first interface program executes on a remote computer to provide an interface screen for an industrial controller. (*See e.g.* Application at paragraph [0009]). A second interface program executing on a Web server communicates with the remote computer over the Internet, and further communicates with an industrial control system controlling an industrial process through input and output data communicated with the industrial process. (*See e.g.* Application at paragraph [0009]). The first and second interface program execute to provide a protocol so that the first interface program discovers and instance software objects related to the input and output data and stored on the Web server. (*See e.g.* Application at paragraph [0009]). The first interface program uses pre-written software objects to implement the interface.

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(See e.g. Application at paragraph [0010]). The protocol provides for at least one persistence instruction that preserves an instance of a software object on the Web server after cessation of a communication session between the remote computer and the Web server. (See e.g. Application at paragraphs [0015], [0050]).

B. Independent Claim 21

Independent claim 21 and its corresponding dependent claims relate to a method of remote communication with an industrial control system. A first interface program is executed on a remote computer to provide an interface screen for an industrial controller. (See e.g. Application at paragraph [0009]). A second interface program is executed on a Web server communicating with the remote computer over the Internet and further communicating with an industrial control system controlling an industrial process through input and output data communicated with the industrial process. (See e.g. Application at paragraph [0009]). The first and second interface programs further execute to provide a protocol so that the first interface program may discover and instance software objects related to the input and output data and stored on the Web server. (See e.g. Application at paragraph [0009]). The protocol calls for a persistence command that retains a copy of a software object on the Web server after communication between the remote computer and the Web server is terminated. (See e.g. Application at paragraphs [0015], [0050]). The first interface program may use pre-written software objects to implement the interface. (See e.g. Application at paragraph [0010]).

VI. Grounds of Rejection to be Reviewed (37 C.F.R. §41.37(c)(1)(vi))

A. Whether claims 1-9, 11-15, 21-29 and 31-35 are anticipated under 35 U.S.C. §102(e) as being anticipated by Crater *et al.* (US 6,201,996).

B. Whether claims 2-4 and 22-23 are unpatentable under 35 U.S.C. §103(a) over Crater *et al.* (US 6,201,996) in view of Skonnard ("SOAP, The Simple Object Access Protocol," p. 1-16, Jan. 2000).

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VII. Argument (37 C.F.R. §41.37(c)(1)(vii))**A. Rejection of Claims 1-9, 11-15, 21-29 and 31-35 Under 35 U.S.C. §102(e)**

Claims 1-9, 11-15, 21-29 and 31-35 stand rejected under 35 U.S.C. §102(e) as being anticipated by Crater *et al.* (US 6,201,996). It is respectfully submitted that this rejection should be reversed for at least the following reasons. Crater *et al.* fails to teach or suggest *each and every element* of the subject claims.

For a prior art reference to anticipate, 35 U.S.C. §102 requires that "*each and every element* as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950 (Fed. Cir. 1999) (quoting *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)) (emphasis added).

The claimed subject matter of independent claim 1 (and similarly in independent claim 21) relates to a system and method for interfacing with a control system from a remote computer. A *first interface program executes on a remote computer* to provide an interface screen for an industrial controller. A *second interface program executes on a Web server*, and communicates with both *the remote computer* and *an industrial control system*. The first and second interface program execute to provide a *protocol* so that the first interface program *discovers and instances software objects* related to the input and output data and *stored on the Web server*. The protocol *provides for at least one persistence instruction that preserves an instance of a software object on the Web server* after cessation of a communication session between the remote computer and the Web server. Crater *et al.* does not disclose such claim features.

Crater *et al.* relates to communication with programmable controllers for operating and monitoring industrial processes and equipment. It should be noted that Crater *et al.* discloses a controller scheme that *incorporates* a web server within the controller. In the controller architecture section at col. 7, line 52 *et seq.*, Crater *et al.* discloses a *control system 100* that *executes program instructions to operate, for example, a piece of industrial equipment*. Crater *et al.*'s system 100 includes a CPU 112

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and a computer storage device 116 that includes a web server module 170. Crater et al. discloses at col. 9, lines 16-18 that management and transmission of web pages 165 to a querying computer is handled by a web server module 170, which allows controller 100 to function as a network server. From this disclosure, it is very clear that Crater et al. fails to disclose or suggest discrete network components that provide a protocol for accessing controller data as claimed, namely a first interface program that executes on a remote computer, a second interface program that executes on a Web server, and communicates with both the remote computer and an industrial control system. Such discrete network components for communicating provide a clear advantage over Crater et al. that discloses the industrial control system acting as the Web server. As is commonly known, controllers have limited processing capabilities. Thus, the claimed invention employs an external Web server that operates in concert with the industrial control system to mitigate such processing concerns while facilitating data access to the industrial control system via the claimed communications protocol.

Further, Crater et al. nowhere discloses *a persistence instruction that preserves an instance of a software object on the Web server*. At page 2, line 4 of the Final Action dated October 28, 2005, the Examiner stated:

Firstly, Crater et al. discloses an applet (an instruction that preserves an instance of a software object) transmitted by the controller with the web page to the client (col. 7, lines 7-10), i.e. the applet is on the web server. (Emphasis added)

However, the passage at col. 7, lines 7-10 of Crater et al. actually states:

As used herein, the term "applet" refers generically to browser-executable instructions transmitted by the controller, preferably with (or adjunct to) a web page.

It is readily apparent from this cited passage (along with the general understanding of internet protocol) that an *applet* executes on a web browser, *not* a web server as alleged by the Examiner. The Final goes on to state that:

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The applet is capable of updating the user's display every 15 sec (i.e. persistence instruction). The applet causes the browser to communicate with the server controller every 15 sec to obtain new Cap-Time data (i.e. the persistence applet causes communication after session cessation every 15 sec) (col. 20, lines 26-37).

However, this cited passage actually states that:

Preferably, however, the web page presented to the viewer is not static, but rather is capable of autonomous action while executing on the viewer's browser. This is typically accomplished by embedding applet code in the web page. In the embodiment illustrated in FIG. 4F, the web page is capable of updated the line chart on the viewer's display every 15 sec. When the web page is rendered in the viewer's browser, applet code causes the browser to communicate with the controller every 15 sec to obtain new Cap_Time data. The applet then modifies the displayed web page to incorporate the newly retrieved data into the illustrated line chart.

It is readily apparent from this passage that it is the *applet code*, embedded in the *web page*, which causes the *browser* to communicate with the controller every 15 sec to obtain new Cap_Time data. Therefore, even if the applet could somehow be construed as a *persistence instruction* as alleged by the Examiner, it cannot be construed as a *persistence instruction that preserves an instance of a software object on the Web server* as recited in claims 1 and similarly in independent claim 21. In view of the above, Crater *et al.* does not teach or suggest *each and every element* as recited in the subject claims.

The Federal Circuit has repeatedly held that in order to reject claims due to anticipation, the prior art reference must not only teach or suggest each and every element of the claimed invention, but such reference must also identically set forth the claimed limitations as recited in the subject claims. See 1-3 Chisum on Patents §3.02[1][b]. See *e.g.*, *Gechter v. Davidson*, 116 F.3d 1454, 1457, 43 USPQ2d 1030, 1032 (Fed. Cir. 1997) ("Under 35 U.S.C. §102 every limitation of a claim must *identically appear* in a single prior art reference for it to anticipate the claim."); (emphasis added). See *Novo Nordisk A/S v. Becton Dickinson & Co.*, 96 F. Supp.2d

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309, 312 (S.D. N.Y. 2000) ("It is not sufficient that each element be found somewhere in the reference, the elements must be '*arranged as in the claim.*'"); (emphasis added).

For at least the reasons stated above, the Examiner has failed to cite prior art that teaches or suggests each and every limitation of the subject claims. Accordingly, the Examiner has failed to establish a case of anticipation pursuant to 35 U.S.C. §102(e). In view of at least the foregoing, it is respectfully requested that the rejection of independent claims 1 and 21 (and claims that depend there from) be reversed.

B. Rejection of Claims 2-4 and 22-23 Under 35 U.S.C. §103(a)

Claims 2-4 and 22-23 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Crater *et al.* (US 6,201,996) in view of Skonnard ("SOAP, The Simple Object Access Protocol," p. 1-16, Jan. 2000). It is respectfully submitted that this rejection should be reversed for at least the following reasons. Crater *et al.* and Skonnard, individually and in combination, do not disclose or suggest all the claim limitations of the subject claims.

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP §706.02(j).

Claims 2-4 and 22-23 include limitations drawn to the SOAP protocol. In the Final Action (page 6, fourth line up, *et seq.*), the Examiner notes that Crater *et al.* discloses using HTTP protocol but admits that Crater *et al.* fails to disclose the SOAP protocol. Skonnard is cited simply for a general description of the SOAP protocol and various particulars that are read onto the subject claims. However, as was shown in detail above, Crater *et al.* fails to disclose or suggest: a *first interface program* that executes on a remote computer, and a *second interface program* that executes on a Web server, and

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communicates with both *the remote computer and an industrial control system*; and also *a persistence instruction that preserves an instance of a software object on the Web server*. Skonnard does not make up for the aforementioned deficiencies of Crater *et al.* with respect to independent claims 1 and 21 (from which claims 2-3 and 22-23 depend). Specifically, Skonnard also fails to teach or suggest a *persistence instruction that preserves an instance of a software object on the Web server* as recited in independent claim 1 (and similarly in independent claim 21). Therefore, the proposed combination fails to teach or suggest all the subject matter recited in independent claims 1 and 21 (and thus 2-4 and 22-23 which depend there from).

Notwithstanding that the cited references do not make obvious the claimed subject matter, there is no motivation or suggestion to combine the references in the manner suggested. In order to reject claims in an application pursuant to 35 U.S.C. §103, there must be some logical reason apparent from *positive, concrete evidence* of record, which justifies a combination of primary and secondary references. See *In re Lakowski* 871 F.2d 115; 10 U.S.P.Q.2D (BNA) 1397 (Fed. Cir. 1989) citing *In re Regel*, 526 F.2d 1399, 1403 n.6, 188 USPQ 136, 140 n.6 (CCPA 1975). A challenger to the validity of a patent cannot pick and choose among the individual elements of assorted prior art references to recreate the claimed invention; the *challenger has the burden to show some teaching or suggestion* in the references to support their use in the particular claimed combination. See *Smithkline Diagnostics, Inc. v. Helena Laboratories Corp.*, 859 F.2d 878, 887, 8 USPQ2d 1468, 1475 (Fed. Cir. 1988).

The Examiner contended that motivation to combine the Crater *et al.* and Skonnard references exists:

One of ordinary skill in the art would recognize that Crater's system that uses HTTP protocol is not in an industry standard form and requires bridging to other technologies and the use of a simple protocol would codify the HTTP protocol into an industry standard form that does not require bridging and facilitate interoperability. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Aaron's (Skonnard's) teachings to modify the system of Carter (sic) by using SOAP protocol to provide instructions between the first interface program and the second interface program,

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wherein the call arrangement is sequential and multiple instructions are transmitted in a single SOAP message in order to achieve a simple Protocol that provides (sic) an industry standard, does not require bridging and facilitate Interoperability.

It is respectfully submitted that the HTTP protocol is in fact the industry standard for use web browsers, as is the subject of Crater *et al.* Indeed, the Internet and HTTP-driven web browsers are ubiquitous in today's world, and it would be preposterous to suggest otherwise, as has the Examiner. As for *bridging to other technologies and providing interoperability*, these are not problems that are in any way identified or suggested by Crater *et al.* Indeed, such modification extends far beyond the clear disclosure of the reference, and such would destroy the operability of the Crater *et al.* device, without extensive experimentation to arrive at a workable solution. It is readily apparent that the Examiner had not met the requisite burden to show proper motivation to combine Crater *et al.* with Skonnard. The prior art items themselves must suggest the desirability and thus the obviousness of making the combination without the slightest recourse to the teachings of the patent or application. Without such independent suggestion, the prior art is to be considered merely to be inviting unguided and speculative experimentation, which is not the standard with which obviousness is determined. *Amgen, Inc. v. Chugai Pharmaceutical Co. Ltd.*, 927 F.2d 1200, 18 USPQ2d 1016 (Fed. Cir. 1991); *In re Laskowski*, 871 F.2d 115, 117, 10 USPQ2d 1397, 1398 (Fed. Cir. 1989); *In re Dow Chemical Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1532 (Fed. Cir. 1988); *Hodosh v. Block Drug*, 786 F.2d at 1143 n. 5., 229 USPQ at 187 n. 4.; *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1985).

It appears the Examiner had impermissibly employed 20/20 hindsight with Appellants' specification as a roadmap to make the purported combination. The rationale proffered to modify and combine Crater *et al.* and Skonnard is to achieve benefits identified in Appellants' specification, which overcome problems associated with conventional systems and/or methods. Appellants' representative respectfully submits that this is an unacceptable and improper basis for a rejection under 35 U.S.C. §103. In essence, the Examiner based the rejection on the assertion that it would have been obvious to do something not suggested in the art because so doing would provide

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advantages stated in Appellants' specification. This sort of rationale has been condemned by the Court of Appeals for the Federal Circuit. *See, for example, Panduit Corp. v. Dennison Manufacturing Co.*, 1 USPQ2d 1593 (Fed. Cir. 1987).

In view of at least the foregoing, it is readily apparent that there is no suggestion or motivation to combine Crater *et al.* and Skonnard. Even if these references were combined in the manner suggested, they would not make obvious the claimed subject matter as recited in independent claim 1 (and similarly recited independent claim 21 and claims which respectively depend there from). Accordingly, this rejection should be reversed.

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C. Conclusion

For at least the above reasons, the claims currently under consideration are believed to be patentable over the cited references. Accordingly, it is respectfully requested that the rejections of claims 2-4 and 22-23 be reversed.

A credit card payment form is filed concurrently herewith in connection with all fees due regarding this document. In the event any additional fees may be due and/or are not covered by the credit card, the Commissioner is authorized to charge such fees to Deposit Account No. 50-1063.

Respectfully submitted,
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VIII. Claims Appendix (37 C.F.R. §41.37(c)(1)(viii))**1. An industrial control system interface comprising:**

a first interface program executing on a remote computer to provide an interface screen for an industrial controller;

a second interface program executing on a Web server communicating with the remote computer over the Internet and further communicating with an industrial control system controlling an industrial process through input and output data communicated with the industrial process;

the first and second interface program execute to provide a protocol so that the first interface program discovers and instances software objects related to the input and output data and stored on the Web server; the first interface program uses pre-written software objects to implement the interface; and

the protocol provides for at least one persistence instruction that preserves an instance of a software object on the Web server after cessation of a communication session between the remote computer and the Web server.

2. The industrial control system interface of claim 1, the protocol provides for the communication of instructions between the first interface program and the second interface program using the SOAP protocol.

3. The industrial control system interface of claim 1, multiple instructions are transmitted in a single SOAP protocol message and wherein a call arrangement of the SOAP protocol is selected from the group consisting of sequential, nested, and a combination of both.

4. The industrial control system interface of claim 1, the SOAP protocol provides for a discovery instruction to be transmitted from the first interface program that causes the second interface program to provide characteristics of the software objects.

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5. The industrial control system interface of claim 4, the characteristics are object properties, object constructors, object methods, and object events.
6. The industrial control system interface of claim 1, the protocol provides for a constructor instruction creating an instance of a software object on the Web server.
7. The industrial control system interface of claim 1, the protocol provides for a set property instruction setting a property of a software object on the Web server.
8. The industrial control system interface of claim 1, the protocol provides for an invocation of a method of a software object on the Web server.
9. The industrial control system interface of claim 1, the protocol provides for an event subscription instruction causing the receipt by the first interface program of event messages from software objects on the Web server.
11. The industrial control system interface of claim 1, the first and second interface programs further execute to
 - connect the remote computer using a Web browser program to a first Web page providing the first interface program;
 - read the first interface program into the remote computer and execute it at the remote computer; and
 - connect the Web browser program to the Web server communicating with the industrial control system.
12. The industrial control system interface of claim 1, the software objects are stored on a Web server other than the Web server communicating with the industrial control system.
13. The industrial control system interface of claim 1, the first interface program is a Java applet.

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14. The industrial control system interface of claim 1, the software objects stored on the Web server include graphic display elements.
15. The industrial control system interface of claim 1, the software objects stored on the Web server include graphic control elements.
21. A method of remote communication with an industrial control system
executing a first interface program on a remote computer to provide an interface screen for an industrial controller;
executing a second interface program on a Web server communicating with the remote computer over the Internet and further communicating with an industrial control system controlling an industrial process through input and output data communicated with the industrial process; and
the first and second interface programs further execute to provide a protocol so that the first interface program may discover and instance software objects related to the input and output data and stored on the Web server, the protocol calls for a persistence command that retains a copy of a software object on the Web server after communication between the remote computer and the Web server is terminated; and
the first interface program may use pre-written software objects to implement the interface.
22. The method of claim 21, the protocol provides for the communication of instructions between the first interface program and the second interface program using the SOAP protocol.
23. The method of claim 21, multiple instructions are transmitted in a single SOAP protocol message and wherein a call arrangement of the SOAP protocol is selected from the group consisting of sequential, nested, and a combination of both.

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24. The method of claim 21, the SOAP protocol provides for a discovery instruction to be transmitted from the first interface program that causes the second interface program to provide a list of characteristics of the software objects.
25. The method of claim 24, the characteristics are object properties, object constructors, object methods and object events.
26. The method of claim 21, the protocol provides for a constructor instruction creating an instance of a software object on the Web server.
27. The method of claim 21, the protocol provides for an set property instruction setting a property of a software object on the Web server.
28. The method of claim 21, the protocol provides for an invocation of a method of a software object on the Web server.
29. The method of claim 21, the protocol provides for an event subscription instruction causing the receipt by the first interface program of event messages from software objects on the Web server.
31. The method of claim 21, including the steps of:
connecting the remote computer via a Web browser program to a first Web page providing the first interface program;
reading the first interface program into the remote computer and executing it at the remote computer; and
connecting the Web browser program to the Web server communicating with the industrial control system.
32. The method of claim 21, the software objects are stored on a Web server other than the Web server communicating with the industrial control system.

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33. The method of claim 21, the first interface program is a Java applet.
34. The method of claim 21, the software objects stored on the Web server include graphic display elements.
35. The method of claim 21, the software objects stored on the Web server include a graphic control elements.

IX. Evidence Appendix (37 C.F.R. §41.37(c)(1)(ix))

None.

X. Related Proceedings Appendix (37 C.F.R. §41.37(c)(1)(x))

None.